

Iwao HINO* and Ken KATUMOTO*: On *Chaetopatella*,
a New Genus of the Excipulaceae

日野 巖*・勝本 謙*: 新属キイトパテラについて

The writers described in 1954 a species of bambusicolous fungi belonging to the family Excipulaceae, and provisionally named it as *Heteropatella setulosa* Hino et Katumoto. They were, however, somewhat unsatisfied with their own conclusion to include the fungus in the genus *Heteropatella*, and since then they have had hard work to determine the proper systematic position of this fungus. Recently they had fortunately the satisfaction of the matter having settled favourably, for two specimens of similar fungi belonging to the Excipulaceae were sent to the writers. The one was found on the culms of *Sasa kurilensis* Makino et Shibata collected by Mr. Hiroshi Muroi in Akita Prefecture, and the other was found on the leaf-sheathes of *Pleioblastus hindsii* Nakai collected by Mr. Huzio Katō in Miyazaki Prefecture.

These three species of fungi above mentioned are in high similarity in pycnidia and conidiospores, and the writers at length arrived at the conclusion that these fungi were to be included in a new genus of the Excipulaceae in view of the results so far achieved.

Morphology of the fungi

The fungus collected by Mr. H. Muroi is parasitic on the twigs of *Sasa kurilensis* Makino et Shibata on Nyūtōzan in Ugo Province. The pycnidia are scattered on the culms as blackish conic pustules in appearance, without a stroma, solitary, sparse or sometimes slightly gregarious, superficial, at first coniform, later dish-like in form by opening at the apex or rarely opening widely $350-500\mu$ in diameter at the basal portion and $250-350\mu$ in height. The contexture of the pycnidia is pseudoparenchymatous, blackish-brown, subcoriaceous and $15-25\mu$ in thickness. The bristles are densely cespitose on the upper surface of the pycnidia, linear, simple, erect, continuous, obtuse at the apex, fuscous or blackish-brown and $130-210 \times 3-4\mu$. The conidiophores are subcylindrical, simple, hyaline and $16.3-32.6 \times 2.5-3\mu$. The conidia are solitary at the top of the conidiophore, longvermicular, 15-septate, not constricted at the septa, obtuse, ciliated at each end, hyaline, guttate and $61.9-81.5 \times 2.6-3.0\mu$. The cilium at the apex is long thread-like, simple, hyaline and $32-47 \times 0.8-1.0\mu$.

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while the cilium at the base is short, growing laterally, simple, hyaline and $8-13 \times 0.8-1.0\mu$.

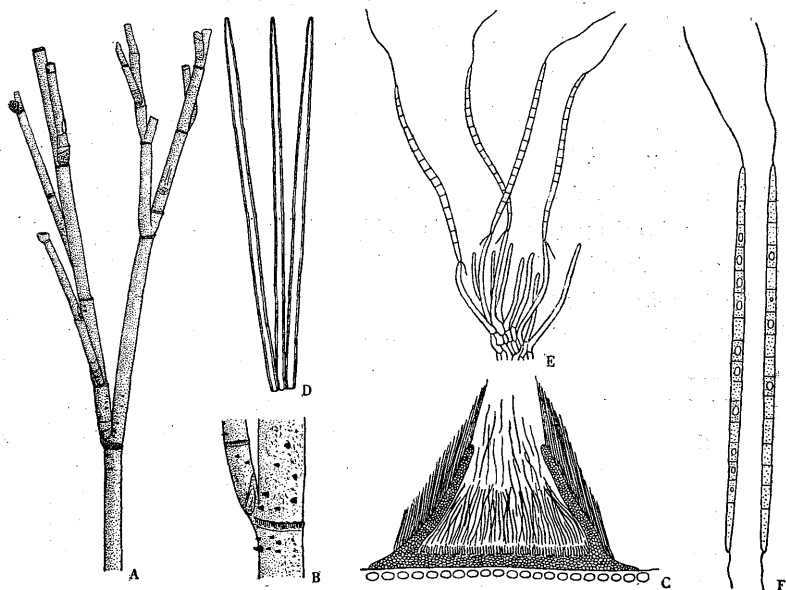


Fig. 1. *Chaetopatella longiciliata* Hino et Katumoto. A & B. pycnidia on the culms. C. pycnidium. D. setae. E. conidiophores and conidia. F. conidia ($\times 700$)

The fungus collected by Mr. H. Kato is parasitic on the decaying leaf-sheaths of *Pleioblastus hindsii* Nakai at Takaharu-tyo in Hyūga Province. The fungus is highly similar to the former species in appearance, though the latter fungus is much smaller in size of the pycnidia than the former fungus. The pycnidia are $150-240\mu$ in diameter at the basal portion and $150-200\mu$ in height, and the contents are measured to be $10-15\mu$ in thickness. The bristles and the conidiophores are similar in shape to the former species. The bristles are $150-260 \times 3-5\mu$ and the conidiophores are $13-19 \times 1.5-2.0\mu$. The conidia are solitary at the top of the conidiophore, long-vermicular, 8-septated, not constricted at the septa, obtuse or rounded, ciliated at each end, hyaline, guttate and $74.9-104.5 \times 2.8-3.2\mu$. The cilia at the apex are thread-like, hyaline, typically two in number, twice-forked, frequently irregularly ramose and $5-11 \times 0.5-0.8\mu$. The cilia at the base are rather short, growing laterally, two in number, frequently forked, thus having a look that the cilia are three or four in number, and $3-6 \times 0.5-0.8\mu$.

The fungus formerly described by the writers as *Heteropatella setulosa* is paratitic on the dead culm of *Pleioblastus simoni* Nakai at Tyōhu-tyō in Simonoseki City

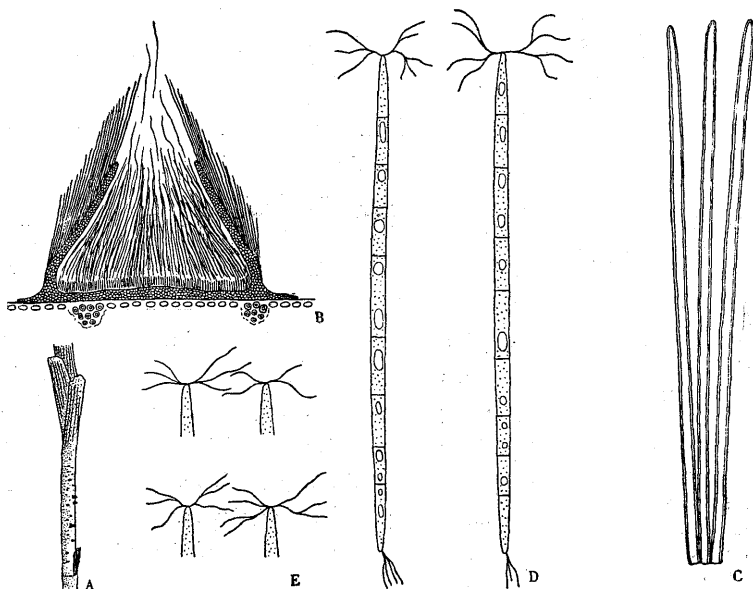


Fig. 2. *Chaetopatella coronata* Hino et Katumoto. A. pycnidia on the leaf-sheath. B. pycnidium. C. setae. D. conidia ($\times 700$). E. various forms of apical cilia.

in Nagato Province. The pycnidia are scattered, superficial, shield-like in shape, with wide opening, $0.8-2.0 \times 1.6-1.8$ mm wide at the basal portion and $90-120 \mu$ in height. The contexture of the pycnidia is pseudoparenchymatous, coriaceous at the basal portion, subcarbonaceous, rather fragile at the upper portion and blackish-brown. The bristles are densely cespitose on the upper surface of the pycnidia, linear, erect or somewhat curved, obtuse at the apex, continuous, fuliginous brown and $100-200 \times 3.5-5.0 \mu$. The conidiophores are subcylindrical, simple, hyaline and $16.4-17.8 \times 3.0-3.5 \mu$. The conidia are solitary at the top of the conidiophore, varicillate, 7-12-septate, not constricted at the septa, mostly a little curved, obtuse, ciliated at each end, hyaline, guttate and $26.7-68.4 \times 3-4 \mu$. The cilia at both ends of conidia are thread-like, simple, hyaline and $3-4 \times 1 \mu$.

The former two specimens from Ugo and Hyūga Provinces seem to be closely related to each other in respects of structure and shape of pycnidia, bristles, conidio-

phores and conidia, though there are certain morphological differences between these two specimens. The fungus from Ugo Province has a conidium which is 15-septated and bears a simple cilium at each end, while the fungus from Hyūga Province has a conidium which is 8-septated and bears two forked cilia at each end. The former fungus is parasitic on the culm of the plant belonging to the genus *Sasa* and the latter fungus is on the sheath of the plant belonging to the genus *Pleiblastus*.

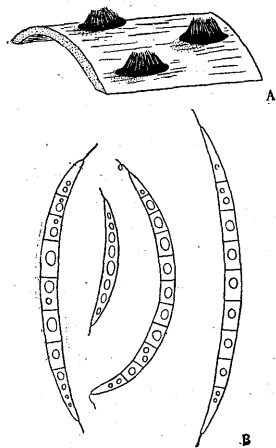


Fig. 3. *Chaetopatella setulosa*
Hino et Katumoto.
A. pycnidia. B. conidia
($\times 700$).

As for *Heteropatella setulosa* the upper portion of the subcarbonaceous pycnidia is rather fragile and apt to crumble. The pycnidium then becomes widely open at the mouth, and a dish-like portion alone is left at last. The pycnidium of this fungus is three to five times larger in size than the other two fungi, and the appearance of the pycnidia gives us an impression that the fungus is pretty different from the former two fungi. Notwithstanding such a dissimilarity in appearance, the pycnidium of this fungus seems to be essentially similar to the pycnidia of the others in structure and character of the bristles which are situated on the upper surface of the pycnidia. The conidiophores and conidia are highly in much similarity; the conidia of *Heteropatella setulosa* are also pluriseptated and ciliated at each end, though the spores are mostly curved and the cilia are rather short and indistinct.

This fungus seems to be included in the same genus to which the former two fungi are to be belonged.

Taxonomical discussion on the fungi

The pycnidia of these fungi in question are superficial, and have well-developed basal and upper portions. They are at first coniform, then scutellate, and later become dish-like with wide opening at apical portion. The contexture of pycnidia is coriaceous or occasionally subcarbonaceous in part, and is never fleshy nor radial in structure. These characters of pycnidia undoubtedly indicate that these fungi all belong to the family Excipulaceae.

Several genera belonging to Excipulaceae are known to have setose or hairy

pycnidia. The genera, *Dinemasporium*, *Polynema*, *Stauronema*, *Amerosporium* and *Xenopeltis*, have superficial pycnidia and conidia which are continuous and oblong or fusiform in shape, though the former three have ciliated conidia. The conidia of the genus *Stauronema* have cruciate cilia, and those of the genera *Ypsilonia* and *Excipularia* are pluriseptate, oblong to fusiform in shape and have no cilia. The pycnidia of the genus *Pseudolachnea* are innate-erumpent and somewhat similar to those of the fungi in question, though the conidia of the former are 2-celled. The conidia of the genera *Excipularia* and *Dinemasporium* are ciliated, and the pycnidia are glabrous and innate-erumpent. As for the pycnidia of the genus *Heteropatella* they are glabrous, and have a little elongated conidia, though the shape of pycnidia and the cilia of conidia are somewhat similar to those of the fungi in question. The genus *Septopatella* has glabrous pycnidia and nonciliated conidia, though the pycnidia are entirely superficial.

After the consideration on the morphological characters of the fungi in question and also on the comparison with the known genera of Excipulaceae, the writers wish to establish a new genus, *Chaetopatella*, for the fungi newly found.

The principal characters of *Chaetopatella* and some other related genera of Excipulaceae are briefly tabulated as follows:

	Pycnidia	Conidia
<i>Dinemasporium</i> Lév	superficial, setose, discoid	continuous, fusiform or somewhat allantoid, 1-ciliate at each end
<i>Polynema</i> Lév.	superficial, setose, discoid	continuous, fusiform, 4 (or more)-ciliate at apex
<i>Heteropatella</i> Fckl.	superficial, glabrous, scutellate	continuous to pluriseptate, oblong to fusoid, long-ciliate at apex, short-ciliate at base
<i>Pseudolachnea</i> Ranoj.	erumpent, setose, discoid	2-celled, oblong to fusiform, 1-ciliate at each end
<i>Excipulina</i> Sacc.	superficial, hairy, discoid	pluriseptate, long-fusiform, without appendages, sometimes prolonged into subulate beak at apex
<i>Excipularia</i> Sacc.	superficial, hairy, discoid or cupulate	pluriseptate, fusiform, without appendages
<i>Septopatella</i> Petrak	superficial, glabrous, scutellate	continuous, filiform, without appendages
<i>Chaetopatella</i> Hino et Katumoto	superficial, setose, scutellate to discoid	pluriseptate, vermicular, 1-2-ciliate at each end

The genus *Chaetopatella* seems to be closely related to the genus *Heteropatella*, but it differs from the latter by having setose pycnidia. It is scarcely related to the genus *Septopatella*, as the setose character of pycnidia is an important mark for the classification of imperfect fungi. The conidial formation of the *Septopatella* fungi is quite distinct from the fungi of other genera, and that of *Chaetopatella* fungi is fairly simple.

Technical description in Latin

The diagnosis of the new genus *Chaetopatella* established by the writers is given as follows:

Chaetopatella Hino et Katumoto, gen. nov.

Pycnidiis astromatis, sparsis vel subgregariis, superficialibus, solitariis, setulosis, coniculis dein scutellari- vel disciformibus; contextu subcoriaceo, pseudoparenchymatico, atro-brunneo; setulis super pycnidio dense cespitosis, linearibus, simplicibus, fusco-brunneis vel atro-brunneis; conidiophoris basilaris, subcylindraceutis, simplicibus, hyalinis, conidiosporis acrogenis, solitariis, longi vermiculariformibus, apice utrinque obtusis vel rotundatis, 1-2-ciliatis, multiseptatis, hyalinis, guttatis; ciliis filiformibus, simplicibus vel furcatis, hyalinis.

Typus: *Chaetopatella longiciliata* Hino et Katumoto.

The description in Latin of the fungi belonging to the genus *Chaetopatella* is as follows:

1. **Cheatopatella longiciliata** Hino et Katumoto, spec. nov.

Pycnidiis culmicolis, sparsis vel subgregariis, solitariis, superficialibus, primum coniculis, dein scutellariformibus vel disciformibus, ad basim 350-500 μ latis, 250-350 μ altis; contextu subcoriaceo, pseudoparenchymatico, atro-brunneo, 15-25 μ crasso; setulis super pycnidio dense cespitosis, numerosis, linealibus, simplicibus, rectis, continuis, apice obtusis, fusco-brunneis vel atro-brunneis, 130-210 $\times$ 3-4 μ ; conidiophoris basilaris, subcylindraceutis, simplicibus, apice obtusis vel rotundatis, hyalinis, 16.3-32.6 $\times$ 2.5-3.0 μ ; conidiosporis acrogenis, solitariis, longe vermiculariformibus, apice utrinque obtusis et ciliatis, 15-septatis, non constrictis, hyalinis, guttatis, 61.9-81.5 $\times$ 2.6-3.0 μ ; ciliis apicalis longis, filiformibus, simplicibus, hyalinis, 32-47 $\times$ 0.8-1.0 μ ; ciliis basilaris lateralis, brevioribus, filiformibus, simplicibus, hyalinis, 8-13 $\times$ 0.8-1.0 μ .

Hab. in culmis *Sasae kurilensis* (Nemagaritake). Mt. Nyūtōzan, Prov. Ugo, Japonia (Aug. 4, 1957. H. Muroi—Typus in Herb. Fac. Agr. Univ. Yamaguti).

2. **Chaetopatella coronata** Hino et Katumoto, spec. nov.

Pycnidiis sparsis vel subgregariis, solitariis, superficialibus, primum coniculis, dein scutellariiformibus vel disciformibus, ad basim $150\text{--}240\mu$ latis, $150\text{--}200\mu$ altis; contextu subcoriaceo, pseudoparenchymatico, atro-brunneo, $10\text{--}15\mu$ crasso; setulis super pycnidio dense cespitosis, numerosis, linearibus, simplicibus, rectis, continuis, apice obtusis, fusco-brunneis vel atro-brunneis, $150\text{--}260 \times 3\text{--}5\mu$; conidiophoris basilaris, subcylindraceis, simplicibus, apice obtusis vel rotundatis, hyalinis, $13\text{--}19 \times 1.5\text{--}2.0\mu$; conidiosporis acrogenis, solitariis, longe vermicuraliformibus, apice utrinque obtusis vel rotundatis et 2-ciliatis, 8-septatis, non constrictis, hyalinis, guttatis, $74.9\text{--}104.5 \times 2.8\text{--}3.2\mu$; ciliis apicalis filiformibus, typice dichotomice furcatis, sed frequenter irregulariter ramosis, hyalinis, $5\text{--}11 \times 0.5\text{--}0.8\mu$ ciliis basilaris lateralis, plerumque ramosis, $3\text{--}6 \times 0.5\text{--}0.8\mu$.

Hab. in vaginis foliorum putrescentibus *Pleioblasti hindsii* (Kanzantiku). Taka-haru-tyō, Pro. Hyūga, Japonia (Maius 10, 1958. H. Katō—Typus in Herb. Fac. Agr. Univ. Yamaguti).

3. **Chaetopatella setulosa** (Hino et Katumoto) Hino et Katumoto, comb. nov.

Syn. *Heteropatella setulosa* Hino et Katumoto in Bull. Fac. Agr. Univ. Yamaguti, No. 5, p. 234, 1954.

Hab. in culmis emortuis *Pleioblasti simoni* (Medake). Tyōhu in Simonoseki, Prov. Nagato, Japonia (Martius 31, 1954. K. Katumoto—Typus in Herb. Fac. Agr. Univ. Yamaguti); Oomizima, Prov. Nagato, Japonia (Julius 26, 1954. K. Katumoto).